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THE HUDSON COLLECTION OF BASKETRY

By OTIS T. MASON

In August, 1899, the United States National Museum procured from Dr J. W. Hudson, of Ukiah, California, the best scientific collection of basketry known to the writer from any people on the earth. In this case the people were the Pomo and their subdivisions of the Kulanapan linguistic family, on Russian river, California. In the collection there are a few pieces from other tribes, but in this brief paper they will be disregarded and attention paid to the Pomo specimens alone. In every example the material has been carefully identified by the collector. The plants used are the following :

PLANTS

SCIENTIFIC NAME	PART USED	INDIAN NAME
<i>Carex mendocinensis</i>	Prepared root	Ka-hum
<i>Carex</i> (?)	Dyed root	Tsu-wish
<i>Salix sitchensis</i>	Prepared root	Shi-ko
<i>Salix hindsiana</i>	Prepared stems	Bam
<i>Salix nigra</i>	Prepared inner bark	Ma-lo-ma-lo
<i>Pinus sabiniana</i>	Split root	Ka-li-she
<i>Pseudotsuga taxifolia</i>	Root	Ka-wa
<i>Pteris aquilina</i>	Prepared root	Bis
<i>Cercis occidentalis</i>	Bark side of shoots	Mu-le
<i>Corylus rostratus</i>	Stems	Pshu-ba
<i>Grape</i>	Vine	Bam-tu
<i>Linum californicum</i>	Prepared stems	Ma-sha

In the decoration of this basketry, mineral and animal substances are used, as follows :

MINERAL

SCIENTIFIC NAME	PART USED	INDIAN NAME
<i>Magnetite</i>	Burned, prepared cylinders	Po

ANIMAL

SCIENTIFIC NAME	PART USED	INDIAN NAME
<i>Saxidomus nuttallii</i>	Prepared shell	Ka-ya
<i>Cardium corbis</i>	Prepared shell	Ka-ya
<i>Haliotis</i>	Prepared shell	Tem
<i>Melanerpes californicivorus</i>	Throat and scalp feathers	Ka-tach
<i>Sturnella magna neglecta</i>	Breast feathers	Ju-shil
<i>Lophortyx californicus</i>	Crest	Chi-ka-ka
<i>Anas boschas</i>	Scalp feathers	Ka-yan
<i>Cyanura stelleri</i>	Neck feathers	Tsa-wa-lu
<i>Colaptes mexicanus</i>	Quill splittings	Ba-chi-a
<i>Aquila chrysaetos</i>	Tail and pinions	Shai-i
<i>Agelaius gubernator</i>	Elbow feathers	Tsu-li-a
<i>Icterus bullockii</i>	Neck and breast	Kai-yo-yo

Ka-hum is split into flat strings or splints and kept wet during the weaving; color, light tan. *Tsu-wish* is buried with ashes for about 80 hours, thus dyeing to shades of black. It is split into splints like *ka-hum*. *Shi-ko*, split into splints, also whole stems, and used for fish-weirs; color, cream. *Bam*: 1, Young shoots decorticated and polished for warp; color, straw; 2, Splittings from bark of young shoots; 3, Splittings of young shoots. *Ma-lo-ma-lo*, inner bark strips; color, dark tan. *Ka-li-she*, split root; color, buff. *Ka-wa*, split root, trimmed limbs; color, gray. *Bis*, chewed and cleansed root, split; color, black. *Mu-le*, bark side of shoots, split into tape; burnt sienna. *Pshu-ba*, trimmed stems. *Bam-tu*, vine used rough or decorticated. *Ma-sha*, crushed, hackled, or combed.

Ka-ya, manufactured from clam shells; current among natives as "Indian silver"; monetic base.

Po, mined in Lake county, California; heated dull red, then tempered in hot water; knapped and scoured into cylinders, then bored; current as "Indian gold"; monetic base.

All prepared vegetal substances turn dark with age and especially by the smoke from open fires in Indian huts. *Tsu-wish* ranks first in value; a bunch equals 100 *ka-ya*. A bunch of *ka-hum* equals 65 *ka-ya*; of *mu-le*, 20 *ka-ya*.

Dr Hudson¹ notes the two great types of weaving, to wit, I, the twined (*cha-ma*); II, the coiled (*shi-bu*). Each of these is further divided, as follows:

TWINED WEAVING (*Cha-ma*)²

In twined weaving there are a regular warp and woof, consequently the term "weaving" is correctly applied to it. The warp consists of a number of upright stems or cords, and the weft is generally a two-ply twine made of substances before mentioned. Sometimes, for strengthening or ornamentation, a three-ply braid or twine is used. In all examples of twined weaving the warp stems are enclosed in the turns of the twine, so that if the former were drawn out there would remain a coil of two-ply twine which could be straightened out from the upper edge to the middle of the bottom of the basket. The twined weaving in the Hudson collection is divided as follows:

1. *The Fish-weir Type (Pshu-kan)*.—In this type a number of upright warp-rods are held together by pairs of hazel or willow shoots passing around horizontally, as in a winding stairway, and making a half-twist in each space as in a wattle hedge or fence, enclosing also a horizontal stem as in the fine *ti* style. In the fish-weirs and coarser articles the rough material is used, but in household utensils the willow may be decorticated and even polished. The original material for articles of this kind was hazel (*shu-ba*).

2. *Pshu-tsin*.—This type is mentioned by Dr Hudson, but is not represented in his collection. It is used in granaries, sheathing for thatch, game fences, etc., but not in basketry.

3. *Bam-tush*.—A style of twined weaving called, in the Pomo language, *bam-tush*, from *bam-tu*, a grapevine, the original material; but this has been discarded for stronger and more polished

¹ A detailed description of basket weaving appeared in the *Overland Monthly* for June, 1893. In the August, 1897, issue of that magazine appeared an article on wampum.

² U. S. *National Museum Report*, 1884, pl. viii.

substances. In the splints used for this style of basketry, the brown bark and the pale yellow interior of the stem afford the basket-maker an opportunity for ornamentation. By the term *bam-tush* is evidently meant the plain twined weaving in which only one warp-stem is included in each half-turn of the weft.¹

4. *Shu-set*.—Among the Pomo the *shu-set* is the most highly decorated of this type of weaving. Upon the pieces marked as belonging to this type there are two styles of manipulation. In all cases, however, the twine stitch or mesh passes over two warp-strands instead of one, so that the ribbed appearance on the outside has a diagonal effect.² This method is always employed on Ute basketry and as far south as the Pueblo country. Upon the same pieces, however, the most elaborate figures are produced by a style of twining seen on the basketry of many tribes of Washington, especially on that of the Makah and the Wasko.³ One of the strands of the twine remains always on the inside of the Ute basket and outside on that of the Makah, while the wrapping is done entirely with the other strand, which is usually brown or black, in which case the pattern will show on the outside but not on the inside.

5. *Ti*.—This is the Pomo name for a style of twined weaving in which four elements are employed, namely, (*a*) a set of perpendicular warp-stems, usually of willow (*Salix hindsiana*); (*b*) a stem of the same material carried around, in the form of a coil, horizontally on the outside of the upright warp-stems; (*c*) a regular course of twined weaving, with two splints, which at each half-turn encloses the upright and horizontal warp-stem. This makes a very solid double basket for domestic purposes.⁴ On the outside the appearance is that of the *shu-set* basketry, but the ridges are diagonal; on the inside the appearance is that of the *bam-tush*

¹ U. S. National Museum Report, 1884, pl. xi.

² *Ibid.*, pl. xxi.

³ *Ibid.*, pls. xiii and xiv, *b*.

⁴ Shown in *Overland Monthly and Smithsonian Report*, 1886, I, pl. xxii, fig. 55.

or plain twined weaving. Dr Hudson says that this is the most difficult and most highly prized of all the types of twined weaving.

In addition to these species of twined weaving obtained by Dr Hudson, the following are employed in bottoms or bands of ornamentation and occasionally in the structure of the basket:

(a) Three-ply twine, by which is meant the employment of three members or filaments instead of two in the twining. In the process of twisting, when the third of a turn is made, one of the filaments is caught over a warp-stem, at the next third another filament, and at the end of the whole turn the third is caught over, and so on, the process being repeated from round to round. A moment's thought will show that upon the outside two of the strands will always be shown, while on the inside there will be only one. The texture on the inside, therefore, will be that of plain twined weaving; but on the outside it will be diagonal, in which each of the stitches passes over two warp-stems and, under the circumstances, are imbricated or overlapping.¹

(b) Three-ply braid (*shi-tsin*), used on bottoms and resembling the last named, save that the filaments are plaited instead of twisted, but alternately they pass one at a time over warp-stems on the inside, and on the outside this is indistinguishable from *a*.

Before proceeding to the next of the two great divisions of basketry, attention is called to the fact that in the Pomo collection there are all types of twined weaving—the plain twine, the diagonal twine, the bird-cage twine as among the Makah (Pomo, *lit*), and the four-element twine last described. No other methods of twined weaving are known.

COILED WEAVING (*Shi-bu*)

Of the coiled method of structure there are the following types, three of which are mentioned by Dr Hudson:

Firstly, as in Siamese basketry, a single stem of rattan forms

¹ *Smithsonian Report*, 1886, I, pl. xiii, fig. 55.

the foundation. The sewing is done with a split stem, and the stitches pass around two rods locking into the ones underneath.

Secondly, the foundation is a bundle of splints; stems of plants are split into thin pieces, a number of which are bunched together, and these form the foundation; the sewing passes around the bunch into the one below, so as to take up two or three, also locking into the stitches underneath. This method produces very coarse ware, abundantly exemplified in the Ute collection in the National Museum.

In the third variety a number of rods, usually three, form the foundation, the sewing passing around these into the upper one of the bundle underneath, the stitches interlocking. Specimens of this variety are found throughout the Southwest. Dr Fewkes has figured an example from a very ancient ruin in Arizona.¹ Slight variations in this particular type of coiling are produced by varying the size of the rods. In some examples a larger number are found, and in others one of considerable size is accompanied by a small one above, under which the stitches are locked.

Fourth, in the Hopi meal-tray, as well as in examples from both continents, a larger or smaller bundle of very fine, thread-like filaments makes the foundation. The coiling is done also with thin, fine filaments, so that the surface is variegated in shading and there is great variety in pattern. This last form is not represented in the Hudson collection.

The Pomo, according to Dr Hudson, name the third style *shi-lo*, in which a coil of fir-root fibers makes up the foundation, and these are bound together by a splint of the same material catching in the splints of the coil below, the stitches interlocking. This slovenly method, developed, as intimated above, by the Shoshonean tribes inland, is also ascribed to the Yuki Indians (Yukian stock), but Dr Hudson says that the Pomo long since discarded this method.²

¹ *Smithsonian Report*, 1896, pl. xxxiii.

² *U. S. National Museum Report*, 1884, pl. iv.

The first of the Pomo methods of coiling is called *tsai*, or *bam-cha*, "one rib." The foundation is a single willow shoot, seasoned and smoothed. The sewing is done with splints in such manner that the stitches pass round the current foundation stem and beneath that of the previous coil, the stitches interlocking.¹

In the Hudson collection, owing to the fineness of the natural material, light and elegant pieces are made and intricate figures ornament the surface. In one specimen, the finest perhaps in the world, there are 60 stitches to the linear inch. But the most delicate and versatile type of coiled weaving is called by Dr Hudson *bam-tsu-wu* (*tsu-ba* = three), the foundation of which consists, as above described, of three stems bound down by sewing which passes under the lacing and the upper stem of the coil below. This is regarded as the highest type of Pomo basketry. The materials are said to require the most careful tests of evenness, pliability, and color. It is to this type of sewing that feather-work is best adapted, and it is the opinion of Dr Hudson that it formed an incentive for adding this rich ornamentation.

The borders of many of the pieces are finished by a whipping of two sorts in which the stitches in one case are perpendicular to the foundation, and in the other oblique. Furthermore, a false braid appears on the border of many pieces, in which the effect is produced not by the plaiting of three splints, but by the peculiar administration of a single splint.

Upon the Pomo cradles the warp-stems are sewed together by a manipulation called *tsa-wam*, which on the inside of the cradle resembles two rows of twined weaving, but on the outside has the appearance of an intricate four-ply braid. This is done by means of a single filament, which passes in half-hitches over two warp-stems, backward above and below a central line, then, advancing one rod, makes the same double half-hitch backward over two, and so proceeds forward over one and backward over two until the circuit is finished.

¹ *Ibid.*, pl. xxiv.

ORNAMENTATION

The ornamentation on the Hudson basketry is all in the weaving; even the feather-work is caught into the stitches or meshes in coiling. There is no such embroidery or overlaying as in the Tlinkit and Klikitat ware. The patterns are (1) a line or more of technique like that of the body, only in another color; (2) a band of twining or coiling in another stitch; (3) bands of patterns resembling a strip of lace-work around the body; (4) geometric patterns repeated over and over; (5) spiral patterns rising from the bottom, widening over the bulge, and contracting at the rim; (6) overlaying of feather-work and shell-work. The most ambitious and truly marvelous variety is number 5, wherein several intricate designs, usually three, are woven. On many there is an axis of white, spotted here and there with little figures, and on each side of this axis or lane of white are symmetric accumulations of rhombs, rectangles, and triangles, finished out with figures of quail-crests and other conventional forms, the whole producing a design of great beauty and complexity.

According to Dr Hudson, all but one of the basket patterns, tattoo marks, inscriptions, pictographs (*ba-shi'*) refer to Pomo cosmogony and totemism. The *Ke'-a*, or Quail people, use a pattern resembling the quail's crest. The Pomo make a triangular pattern for a mound of red earth on Spencer's ranch, in Potter's valley; they also use a T-shape design for the buckeye tree (*di-sa-ka-li'*), the fruit of which is a part of their dietary. The *Ka-tcha-ka* Pomo used an acute triangle or series of triangles superposed one on another to indicate arrowheads. So a number of rhomboids in zigzag form denote waves on the waters of Clear lake, and a band of rectangles, joined by means of a line of weaving, stands for a series of connected points.